

The demand must be filed directly with the competent International Preliminary Examining Authority or, if two or more Authorities are competent, with the one chosen by the applicant. The full name or two-letter code of that Authority may be indicated by the applicant on the line below:

IPEA/

# PCT

## CHAPTER II

### DEMAND

under Article 31 of the Patent Cooperation Treaty:

The undersigned requests that the international application specified below be the subject of international preliminary examination according to the Patent Cooperation Treaty and hereby elects all eligible States (except where otherwise indicated).

For International Preliminary Examining Authority use only

Identification of IPEA		Date of receipt of DEMAND
Box No. I IDENTIFICATION OF THE INTERNATIONAL APPLICATION		
International application No. PCT/EP2004/052446	International filing date (day/month/year) 5 OCTOBER 2004 (05.10.2004)	(Earliest) Priority date (day/month/year) 14 OCTOBER 2003 (14.10.2003)
Title of invention IMPROVED CEREBRAL ELECTROSTIMULATION DEVICE		
Box No. II APPLICANT(S)		
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.) <b>COMMISSARIAT A L'ENERGIE ATOMIQUE</b> 31-33 rue de la Fédération 75752 PARIS 15ème FRANCE		Telephone No. 01 69 08 82 93
		Facsimile No. 01 69 08 82 92
		Teleprinter No.
		Applicant's registration No. with the Office
State (that is, country) of nationality: FR	State (that is, country) of residence: FR	
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.) <b>INSTITUT NATIONAL DE LA SANTE ET DE LA RECHERCHE MEDICALE</b> 101, rue de Tolbiac 75654 PARIS CEDEX 13 FRANCE		
State (that is, country) of nationality: FR	State (that is, country) of residence: FR	
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.) <b>CAILLAT Patrice</b> 8 rue de la Mure 38130 ECHIROLLES FRANCE		
State (that is, country) of nationality: FR	State (that is, country) of residence: FR	
<input checked="" type="checkbox"/> Further applicants are indicated on a continuation sheet.		

**Continuation of Box No. II APPLICANT(S)***If none of the following sub-boxes is used, this sheet should not be included in the demand.*Name and address: (*Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.*)

**BOURGERETTE Alain**  
**19 avenue Aristide Bergès**  
**38190 VILLARD-BONNOT**  
**FRANCE**

State (*that is, country*) of nationality:  
**FR**

State (*that is, country*) of residence:  
**FR**

Name and address: (*Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.*)

**VACHERAND François**  
**8 rue de Metz**  
**38800 PONT-DE-CLAIX**  
**FRANCE**

State (*that is, country*) of nationality:  
**FR**

State (*that is, country*) of residence:  
**FR**

Name and address: (*Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.*)

**BENABID, Alim-Louis**  
**23 bis avenue de l'Eygala**  
**38240 MEYLAN**  
**FRANCE**

State (*that is, country*) of nationality:  
**FR**

State (*that is, country*) of residence:  
**FR**

Name and address: (*Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.*)

State (*that is, country*) of nationality:

State (*that is, country*) of residence:

Further applicants are indicated on another continuation sheet.

**Box No. III AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE**

The following person is  agent  common representative

and  has been appointed earlier and represents the applicant(s) also for international preliminary examination.

is hereby appointed and any earlier appointment of (an) agent(s)/common representative is hereby revoked.

is hereby appointed, specifically for the procedure before the International Preliminary Examining Authority, in addition to the agent(s)/common representative appointed earlier.

Name and address: (*Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.*)

Gérard POULIN

c/o BREVATOME

3, rue du Docteur Lancereaux  
75008 PARIS  
FRANCE

Telephone No.  
01 53 83 94 00

Faxsimile No.  
01 45 63 83 33

Teleprinter No.

Agent's registration No. with the Office

Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.

**Box No. IV BASIS FOR INTERNATIONAL PRELIMINARY EXAMINATION****Statement concerning amendments:**\*

1. The applicant wishes the international preliminary examination to start on the basis of:

the international application as originally filed

the description  as originally filed  
 as amended under Article 34

the claims  as originally filed  
 as amended under Article 19 (together with any accompanying statement)  
 as amended under Article 34

the drawings  as originally filed  
 as amended under Article 34

2.  The applicant wishes any amendment to the claims under Article 19 to be considered as reversed.

3.  The applicant wishes the start of the international preliminary examination to be postponed until the expiration of 20 months from the priority date unless the International Preliminary Examining Authority receives a copy of any amendments made under Article 19 or a notice from the applicant that he does not wish to make such amendments (Rule 69.1(d)). (*This check-box may be marked only where the time limit under Article 19 has not yet expired.*)

\* Where no check-box is marked, international preliminary examination will start on the basis of the international application as originally filed or, where a copy of amendments to the claims under Article 19 and/or amendments of the international application under Article 34 are received by the International Preliminary Examining Authority before it has begun to draw up a written opinion or the international preliminary examination report, as so amended.

Language for the purposes of international preliminary examination: English.....

which is the language in which the international application was filed.

which is the language of a translation furnished for the purposes of international search.

which is the language of publication of the international application.

which is the language of the translation (to be) furnished for the purposes of international preliminary examination.

**Box No. V ELECTION OF STATES**

The applicant hereby elects all eligible States (*that is, all States which have been designated and which are bound by Chapter II of the PCT*)

excluding the following States which the applicant wishes not to elect:

**Box No. VI CHECK LIST**

The demand is accompanied by the following elements, in the language referred to in Box No. IV, for the purposes of international preliminary examination:

1. translation of international application	:	sheets	<input type="checkbox"/>	<input type="checkbox"/>
2. amendments under Article 34	:	5 sheets	<input type="checkbox"/>	<input type="checkbox"/>
3. copy (or, where required, translation) of amendments under Article 19	:	sheets	<input type="checkbox"/>	<input type="checkbox"/>
4. copy (or, where required, translation) of statement under Article 19	:	sheets	<input type="checkbox"/>	<input type="checkbox"/>
5. letter	:	sheets	<input type="checkbox"/>	<input type="checkbox"/>
6. other (specify) response to the written opinion dated December 10, 2004	:	1 sheets	<input type="checkbox"/>	<input type="checkbox"/>

The demand is also accompanied by the item(s) marked below:

1.  fee calculation sheet  
2.  original separate power of attorney  
3.  original general power of attorney  
4.  copy of general power of attorney;  
reference number, if any:

5.  statement explaining lack of signature  
6.  sequence listing in computer readable form  
7.  other (specify):

**Box No. VII. SIGNATURE OF APPLICANT, AGENT OR COMMON REPRESENTATIVE**

*Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the demand).*



Gérard POULIN

Gérard POULIN

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1. Date of actual receipt of DEMAND:
2. Adjusted date of receipt of demand due to CORRECTIONS under Rule 60.1(b):
3.  The date of receipt of the demand is AFTER the expiration of 19 months from the priority date and item 4 or 5, below, does not apply.  The applicant has been informed accordingly.
4.  The date of receipt of the demand is WITHIN the period of 19 months from the priority date as extended by virtue of Rule 80.5.
5.  Although the date of receipt of the demand is after the expiration of 19 months from the priority date, the delay in arrival is EXCUSED pursuant to Rule 82.

For International Bureau use only

**Demand received from IPEA on:**

BREVATOME  
3, rue du Docteur Landerneau  
75609 Paris Cedex 12  
Tél. 01 53 83 94 00 - Fax 01 45 63 83 33

## PCT

## FEE CALCULATION SHEET

## Annex to the Demand

For International Preliminary Examining Authority use only

International application No.	PCT/EP2004/052446	Date stamp of the IPEA
Applicant's or agent's file reference	B14441.3 ALP	
Applicant COMMISSARIAT A L'ENERGIE ATOMIQUE - INSTITUT NATIONAL DE LA SANTE ET DE LA RECHERCHE MEDICALE - CAILLAT P.- BOURGERETTE A. - VACHERAND F. - BENABID A. L.		
<b>CALCULATION OF PRESCRIBED FEES</b>		
1. Preliminary examination fee .....	1 530 euros	P
2. Handling fee ( <i>Applicants from certain States are entitled to a reduction of 75% of the handling fee. Where the applicant is (or all applicants are) so entitled, the amount to be entered at H is 25% of the handling fee.</i> ) .....	129 Euros	H
3. Total of prescribed fees <i>Add the amounts entered at P and H and enter total in the TOTAL box .....</i>	1 659 Euros	
	TOTAL	
<b>MODE OF PAYMENT</b>		
<input checked="" type="checkbox"/> authorization to charge deposit account with the IPEA (see below)	<input type="checkbox"/> cash	
<input type="checkbox"/> cheque	<input type="checkbox"/> revenue stamps	
<input type="checkbox"/> postal money order	<input type="checkbox"/> coupons	
<input type="checkbox"/> bank draft	<input type="checkbox"/> other ( <i>specify</i> ): _____	

**AUTHORIZATION TO CHARGE (OR CREDIT) DEPOSIT ACCOUNT***(This mode of payment may not be available at all IPEAs)* Authorization to charge the total fees indicated above.

IPEA/ \_\_\_\_\_

Deposit Account No.: 2804-0035

 (*This check-box may be marked only if the conditions for deposit accounts of the IPEA so permit*) Authorization to charge any deficiency or credit any overpayment in the total fees indicated above.

Date: 28 JUIN 2005

Name: Gérard POULIN

Signature: 

BREVATOME

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10/5/5700

IAP20 Rec'd PCT/PTO 14 APR 2006

BUREAU DE PARIS  
PARIS HEAD OFFICE

Paris, June 24, 2005

EUROPEAN PATENT OFFICE

D-80298 MUNICH

ALLEMAGNE

V.REF. :---N.REF : **B 14441.3 ALP**  
B 073 ALP/GNBOBJET : International Patent Application  
N° PCT/EP2004/052446 of October 05, 2004

Applicant: Commissariat à l'Energie Atomique

**INTERNATIONAL SEARCH REPORT/REONSE TO THE WRITTEN OPINION  
REQUEST FOR PRELIMINARY EXAMINATION**

Dear Sirs,

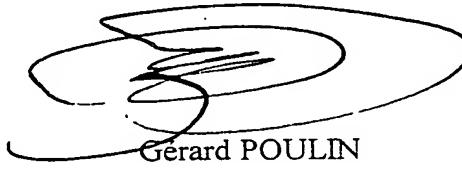
In response to the written opinion of December 10<sup>th</sup> 2004, included in the International Search Report emitted for the above-identified international patent application, please find attached:

- a request for International Preliminary Examination (accompanied by the form for the payment of fees), and
- a modified set of claims on the basis of which the examination must be made.

In this new set of claims, claims 1 and 16 were modified. In both claim 1 and 16, a characteristic, according to which the commutation device includes switching means comprising electromechanical bistables, was added, in conformity with the description (page 5, lines 1 to 5, page 13, lines 22 to 28 and page 13, lines 7 to 15). This characteristic, which also appeared in claim 22 of the application as filed, is neither described nor suggested in the cited documents of the Search Report.

None of these cited documents describes nor suggests an electro-stimulation device as defined in claim 1 or claim 16, of this modified set of claims.

Very truly yours,



Gerard POULIN

Enclosures: Claims 1 to 22.

3, RUE DU DOCTEUR LANCEREAU-75008 PARIS TÉL: 33 (0)1 53 83 84 00 FAX: 33 (0)1 45 63 83 33 [www.brevalex.com](http://www.brevalex.com)  
**brevets.patents@brevalex.com**  
 10, AVENUE BOUVELAIS, 92350 SÉVRES FRENCHELT TÉL: 33 (0)1 39 01 09 10 FAX: 33 (0)1 39 01 09 11 [marques.trademarks@brevalex.com](mailto:marques.trademarks@brevalex.com)

10/575700

IAP20 Rec'd PCT/PTO 14 APR 2006

CLAIMS

1. Cerebral electrostimulation device containing at least one commutation device (300) comprising:

5 - switching means comprising electromechanical bistable switches included in a microelectromechanical system,

10 - at least one input and several outputs each connected to at least one biocompatible electrode (200) or at least one active area (202) of a biocompatible electrode (200), the commutation device (300) being used to selectively connect at least one input to one or more outputs.

15 2. Cerebral electrostimulation device according to claim 1, the commutation device (300) also containing one or more antennas.

20 3. Cerebral electrostimulation device according to either claim 1 or 2, also containing one control device (400) external to the commutation device (300) capable of controlling or programming the commutation device (300) by radio and / or electrical signals.

25 4. Cerebral electrostimulation device according to claim 3, the control device (400) containing remote transmission means.

5. Cerebral electrostimulation device according to claim 3, the control device (400) containing remote transmission means to send radio frequency signals Sc.

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6. Cerebral electrostimulation device according to one of claims 3 to 5, also containing means (500) capable of programming the control device (400).

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7. Cerebral electrostimulation device according to one of claims 1 to 6, also containing power supply means for supplying power to the commutation device (300).

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8. Cerebral electrostimulation device according to claim 7, the power supply means including a power supply (321) integrated in the commutation device (300).

20

9. Cerebral electrostimulation device according to either claim 7 or 8, the power supply means comprising a remote power supply device.

25

10. Cerebral electrostimulation device according to claim 9, in which the remote transmission device comprises at least one energy source (415) external to the commutation device (300), capable of supplying energy to the commutation device in the form of a radio wave and energy collection means integrated into the commutation device (300) capable of picking up

30

said energy, the energy source (415) being integrated into the control device (200).

11. Cerebral electrostimulation device  
5 according to one of claims 1 to 10, the electrostimulation device comprising stimulation electrodes and / or measurement electrodes and / or a combination of stimulation electrodes and measurement electrodes.

10

12. Cerebral electrostimulation device according to one of claims 1 to 11, also comprising at least one stimulator (100) and / or one measurement device (600).

15

13. Cerebral electrostimulation device according to claim 12, comprising at least one stimulator (100) provided with an integrated power supply (101).

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14. Cerebral electrostimulation device according to either claim 12 or 13, the stimulator (100) comprising one or more channels connected to one or more inputs of the commutation device (300).

25

15. Cerebral electrostimulation device according to one of claims 12 to 14, comprising at least one measurement device (600) with one or more channels connected to one or more inputs of the commutation device (300).

16. Cerebral electrostimulation device comprising at least one interconnection device (333) including:

5 - switching means comprising electromechanical bistable switches included in a microelectromechanical system,

10 - at least one input, and several outputs each connected to at least one biocompatible electrode (200) or at least one active area (202) of a biocompatible electrode (200), the interconnection device (333) used to connect each of one or more predetermined inputs to one or more predetermined outputs.

15 17. Cerebral electrostimulation device according to claim 16, also comprising at least one stimulator (100).

20 18. Cerebral electrostimulation device according to claim 17, the stimulator (100) being provided with an integrated power supply (101).

25 19. Cerebral electrostimulation device according to one of claims 1 to 18, in which the commutation device (300) or the interconnection device (333) comprises several inputs, the commutation device (300) being used to connect each input to one or more outputs.

30 20. Cerebral electrostimulation device according to one of claims 1 to 19, the commutation

device (300) or interconnection device (333) being biocompatible.

21. Cerebral electrostimulation device  
5 according to one of claims 1 to 20, the commutation device (300) or interconnection device (333) comprising switching means.

22. Cerebral electrostimulation device  
10 according to either claim 20 or 21, in which the switching means are arranged in matrix form.